

REMARKS

Claims 29-31, 34-36, 39 and 44-48 are now in the application. The recent telephonic interview so courteously granted the undersigned by Examiner Zheng is hereby noted with appreciation.

The rejection of claims 29, 32-43 and 47-48 on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of US Patent 7,250,193 to Matsukawa et al in view of JP 02-240295 has been overcome by the filing of the attached Terminal Disclaimer. The filing of the Terminal Disclaimer is not to be construed as an admission, estoppel or acquiescence. See *GoLight, Inc. v Wal-Mart Stores, Inc.* 355 F.3d. 1327; 69 USPQ 2d. 1481 (Fed. Cir. 2004), *Quad Environmental Technology v. Union Sanitary District*, 20 USPQ2d 1392 (Fed. Cir. 1991) and *Ortho Pharmaceuticals Corp. v. Smith*, 22 USPQ2d 1119 (Fed. Cir. 1992).

Claims 29-31, 34-36, 39, 47 and 48 are rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 (JP '295) in view of US Patent Application Publication 2001/0037748 to Shimakura et al. (hereinafter referred to as "Shimakura") and US Patent 6,180,177 to Nagashima (hereinafter referred to as "Nagashima"). The cited references fail to render obvious the present invention.

JP 02-240295 suggests a pretreatment step in advance of an electrodeposition coating step (please see the translation of JP 02-240295 at page 3, lines 11-16), and the purpose of the pretreatment step is supposedly to impart corrosion resistance to steel plates, and to improve adhesion between coating and steel plate (please see the translation of JP 02-240295 at page 3, lines 17-19).

However, regarding the surface treatment composition used in the pretreatment step, there is no description that the composition used in the pretreatment step is a chemical conversion treatment agent, or zirconium or titanium based composition. Accordingly, JP 02-240295 fails to teach that the claimed chemical conversion coating composition.

Shimakura¹ and Nagashima fail to overcome the above discussed deficiencies of JP 02-240295 with respect to rendering unpatentable the present invention.

Shimakura suggests applying a metallic surface treatment agent to a substrate and drying the applied metallic surface treatment agent to form a coating film (please see Paragraph [0029]).

Moreover, there is no description that cationic electrodeposition coating is conducted after the application of the metallic surface treatment agent. In addition, a steel plate is not disclosed as a substrate in Shimakura and the adjustment of pH of the metallic surface treatment agent is not disclosed in Shimakura (please see Paragraph [0029]).

In addition, since the surface treatment agents described in Shimakura need drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

In other words, as discussed during the interview, the mechanism of forming a coating film in the present invention is completely different from that of Shimakura. The coating composition of the present invention is categorized as a reaction type surface treatment agent, and the coating compositions of Shimakura are categorized as coating type surface treatment agents. The coating film is formed by heating and drying the surface treatment agent in case of an application type surface treatment agent being used; whereas, the coating film according to the present invention is formed to be a chemical conversion coating film by chemical reaction between a metal material and a surface treatment agent in case of a reaction type surface treatment agent being used.

It is difficult to use the application type surface treatment agent to form a uniform coating film on the surface of complex shaped objects such as an automobile body, because applying and drying a uniform coating film on the surface of complex shaped objects are difficult, even though applying and drying a uniform coating film on the surface of flat plate is not so difficult.

¹ Toshiaki Shimakura is both an inventor in this application and the cited reference, both of which are assigned to Nippon Paint Co., Ltd.

In the present invention, a uniform coating film is formed even on the surface of complex shaped objects such as an automobile body, because a uniform coating film is formed on the surface of objects which contact with the surface treatment agent when a reaction type surface treatment composition is used (please see page 5, lines 15-28 of the present specification).

On the other hand, it is difficult to form a coating film on the surface of iron material by using chemical conversion coating agents of the prior art. In contrast, a coating film with sufficient adhesiveness and corrosion resistance can be formed by using the chemical conversion coating agent of the present invention (please see page 4, line 24 to page 5, line 5 of the present specification).

In addition, the chemical conversion treatment is conducted prior to a cationic electrodeposition coating which is conducted as a wet process by immersing an object such as automobile body into the water soluble cationic electrodeposition coating composition. In manufacturing lines for automobiles, both chemical conversion treatment and cationic electrodeposition coating of automobile bodies are carried out as continuous processes.

In the surface treatment method of the present invention, a chemical conversion coating film is formed by chemical reaction, strongly adheres to the surface of the object, and can be rinsed with water without drying. Therefore, all of the steps from surface treatment to cationic electrodeposition coating can be conducted by wet processes.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art would not be lead to selecting a chemical conversion coating or a coating including a zirconium based treatment agent from the innumerable possible types of pretreatment coatings including a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. Accordingly, there is no reason why a person skilled in the art would or could combine JP 02-240295 with Shimakura.

Similarly, there is no indication in Shimakura that the cationic electrodeposition coating is conducted after surface treatment. Therefore, the reasoning to combine JP 02-240295 with

Shimakura has resulted from improper hindsight, which is made possible only by referring to the present specification.

The surface treatment composition for the metallic material in Nagashima is suggested to have a pH of 2.0 to 6.5 (please see column 7, lines 27-44). Moreover, it is suggested that the metallic material is dried after treatment with the surface treatment composition for the metallic material (please see column 4, lines 20-27). In addition, steel plate is disclosed as the substrate of the surface treatment (please see column 8, lines 4-10).

Nagashima uses a water-based surface treatment composition in which a specific water soluble resin (phenol resin) is further required as an essential component. Also, as discussed during the telephonic interview, this water based surface treatment composition of Nagashima is an application type surface treatment agent, because the coating film is formed by drying the coating film after the surface treatment agent is applied on the surface of a metal material (please see column 7, lines 45 to 62 of Nagashima). The coating film is formed by a mechanism in which a water soluble resin is used as the film forming material. Such a mechanism is completely different from the mechanism of forming a coating film of the present invention in which a coating film of zirconium oxide is formed.

Although Nagashima discloses that the pH of the water-based surface treatment agent is from 2.0 to 6.5, the reason for adjusting the pH to be 6.5 or lower is to prevent the precipitation of water soluble polymer, and extend the lifetime of the water-based surface treatment agent. Such reasons for adjusting the pH are completely different from that for adjusting pH in the present invention, i.e. to promote etching of a substrate in order to form a chemical conversion coating film (please see page 12, lines 16-27 of the present specification)

Since the surface treatment agents described in Nagashima needs drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment

agent. Therefore, a person skilled in the art would not be lead to selecting a chemical conversion coating or a coating including a zirconium based treatment agent from the innumerable possible types of pretreatment coatings including a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. Accordingly, there is no reason why a person skilled in the art would or could combine JP 02-240295 with Nagashima.

In addition, *arguendo*, even if it were proper to combine Shimakura and Nagashima with JP 02-240295, the present invention would still not be achieved since, as discussed above and during the telephonic interview, Shimakura and Nagashima do not disclose a chemical conversion agent. Therefore, all of the recitations would not be meet. . “When determining whether a claim is obvious, an examiner must make a searching comparison of the claimed invention -- *including all its limitations* -- with the teaching of the prior art.” *In re Wada and Murphy*, Appeal 2007-3733 (Bd. Pat. App. & Inter. 2008). Obviousness requires a suggestion of all limitations in a claim. *Id.*

To further illustrate differences between a reactive type chemical conversion agent as employed in the present invention and the coating type surface treatment agents of Shimakura and Nagashima, the attached diagram were presented and discussed during the telephonic interview. Furthermore, attached is a Declaration under 37 CFR 1.132 by inventors of the present invention along the lines mentioned during the telephonic interview, that verifies that the compositions of Shimakura and Nagashima are surface coating treatment agents and not reactive type chemical conversion agents as employed according to the present invention. The Declaration discusses the Shimakura and Nagashima references and points out where the disclosures therein make it clear that they are related to surface coating treatments as contrasted to reaction type chemical conversion agents.

Claim 34 further distinguishes over the cited art in reciting a polymer of an amino group-containing silane coupling agent.

Claims 29, 31, 34-36, 39, 44-48 are rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 (JP ‘295) in view of US Patent 6,180,177 to Nagashima. The cited references fail to render obvious the present invention.

JP 02-240295 suggests a pretreatment step in advance of an electrodeposition coating step (please see the translation of JP 02-240295 at page 3, lines 11-16), and the purpose of the pretreatment step is supposedly to impart corrosion resistance to steel plates, and to improve adhesion between coating and steel plate (please see the translation of JP 02-240295 at page 3, lines 17-19).

However, regarding the surface treatment composition used in the pretreatment step, there is no description that the composition used in the pretreatment step is a chemical conversion treatment agent, or zirconium or titanium based composition. Accordingly, JP 02-240295 fails to teach that the claimed chemical conversion coating composition.

Nagashima fails to overcome the above discussed deficiencies of JP 02-240295 with respect to rendering unpatentable the present invention.

The surface treatment composition for the metallic material in Nagashima is suggested to have a pH of 2.0 to 6.5 (please see column 7, lines 27-44). Moreover, it is suggested that the metallic material is dried after treatment with the surface treatment composition for the metallic material (please see column 4, lines 20-27). In addition, steel plate is disclosed as the substrate of the surface treatment (please see column 8, lines 4-10).

Nagashima uses a water-based surface treatment composition in which a specific water soluble resin (phenol resin) is further required as an essential component. Also, as discussed during the telephonic interview, this water based surface treatment composition of Nagashima is an application type surface treatment agent, because the coating film is formed by drying the coating film after the surface treatment agent is applied on the surface of a metal material (please see column 7, lines 45 to 62 of Nagashima). The coating film is formed by a mechanism in which a water soluble resin is used as the film forming material. Such a mechanism is completely different from the mechanism of forming a coating film of the present invention in which a coating film of zirconium oxide is formed.

Although Nagashima discloses that the pH of the water-based surface treatment agent is from 2.0 to 6.5, the reason for adjusting the pH to be 6.5 or lower is to prevent the precipitation of water soluble polymer, and extend the lifetime of the water-based surface treatment agent.

Such reasons for adjusting the pH are completely different from that for adjusting pH in the present invention, i.e. to promote etching of a substrate in order to form a chemical conversion coating film (please see page 12, lines 16-27 of the present specification)

Since the surface treatment agents described in Nagashima needs drying after application to the metal material, the invention therein differs fundamentally from the present invention in this point.

Although a cationic electrodeposition coating method is disclosed in JP 02-240295, the pretreatment step prior to the cationic electrodeposition coating step is not disclosed as employing a chemical conversion coating or a coating including a zirconium based treatment agent. Therefore, a person skilled in the art would not be lead to selecting a chemical conversion coating or a coating including a zirconium based treatment agent from the innumerable possible types of pretreatment coatings including a pretreatment using a chromate based treatment agent or a zinc phosphate based treatment agent. However, there is no reason why a person skilled in the art would or could combine JP 02-240295 with Nagashima.

In addition, *arguendo*, even if it were proper to combine Nagashima with JP 02-240295, the present invention would still not be achieved since as discussed above and during the telephonic interview, Nagashima does not disclose a chemical conversion agent. Therefore, all of the recitations would not be meet. .

As mentioned above, to further illustrate differences between a reaction type chemical conversion agent as employed in the present invention and the coating type surface treatment agents of the type suggested by Nagashima, the attached diagram were presented and discussed during the telephonic interview. Furthermore, attached is a Declaration under 37 CFR 1.132 by the present inventions along the lines mentioned during the telephonic interview, that verifies that the compositions of Nagashima are surface coating treatment agents and not reactive type chemical conversion agents as employed according to the present invention.

Claim 30 is rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 (JP '295) in view of US Patent 6,180,177 to Nagashima and US Patent Application Publication 2001/0037748 to Shimakura et al. The cited references fail to render obvious the present

invention. The above discussions of JP 02-240295, Shimakura and Nagashima are incorporated herein for linguistic economy. Claim 30 is deemed to be patentable for at least those reasons as to why independent claim 29 is patentable.

Claims 32, 33, 37, 38, 41 and 42 were rejected under 35 USC 103(a) as being unpatentable over JP 02-240295 in view of US Patent 6,180,177 to Nagashima and JP 59-064781. The cited references fail to render obvious the present invention. The above discussions of JP 02-240295, and Nagashima are incorporated herein for linguistic economy. JP 59-064781 does not overcome the above discussed deficiencies of JP 02-240295 and Nagashima with respect to rendering unpatentable the present invention. JP 59-064781 was relied upon for a disclosure of a coating comprising a silane coupling agent in an amount of 0.5-100g/l and a fluoride compound of Zr/Ti in an amount of 0.01-5g/l.

Claims 32, 33, 37, 38, 41 and 42 are deemed to be patentable for at least those reasons as to why independent claim 29 is patentable.

Concerning obviousness, *Graham V. John Deere*, 383 U.S. 1,148 U.S.P.Q. 459 (1966) outlines the approach that must be taken when determining whether an invention is obvious. In *Graham*, the Court stated that a patent may not be obtained if the subject matter would have been obvious at the time the invention was made to a person having ordinary skill in the art, but emphasized that nonobviousness must be determined in the light of inquiry, not quality. Approached in this light, §103 permits, when followed realistically, a more practical test of patentability. In accordance with *Graham*, three inquiries must be made in determining whether an invention is obvious:

- (1) The scope and content of the prior art are to be determined.
- (2) The difference between the prior art and the claims at issue are to be ascertained.
- (3) The level of ordinary skill in the pertinent art resolved.
- (4) Evaluating evidence of secondary considerations, such as commercial success, long felt but unsolved needs and failure of others, etc. Also see *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007).

Against this background, the obviousness or nonobviousness of the subject matter is determined. Secondary considerations, such as unexpected results, commercial success, long felt but unsolved needs, failure of others, etc., can be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.

In conjunction with interpreting 35 U.S.C. §103 under Graham, the initial burden is on the Patent Office to provide some suggestion of the desirability of doing what the inventor did, i.e. the Patent Office must establish a *prima facie* case of obviousness. To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention, or the Patent Office must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

To establish a *prima facie* case of obviousness, three basic criteria must be met:

1. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference.
2. There must be a reasonable expectation of success.
3. The prior art reference (or references when combined) must teach or suggest all the claim limitations.

As mentioned above, the cited references fail to disclose all of the claims recitations and particularly do not disclose the reactive chemical conversion agents employed according to the present invention. Along these lines, please see the attached Declaration under 37 CFR 1.132.

The mere fact that the cited art may be modified in the manner suggested in the Office Action does not make the modification obvious, unless the cited art suggests the desirability of the modification or adequate rationale exists to do so. No such suggestion appears in the cited art in this matter nor has the requisite rationale been adequately articulated. The Examiner's attention is kindly directed to *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007); *In re Lee* 61 USPQ2d 1430 (Fed. Cir. 2002), *In re Dembiczak et al.* 50 USPQ2d. 1614 (Fed. Cir. 1999), *In re*

Gordon, 221 USPQ 1125 (Fed. Cir. 1984), *In re Laskowski*, 10 USPQ2d. 1397 (Fed. Cir. 1989) and *In re Fritch*, 23, USPQ2d. 1780 (Fed. Cir. 1992).

Also, the cited art lacks the necessary direction or incentive to those of ordinary skill in the art to render a rejection under 35 USC 103 sustainable. The cited art fails to provide the degree of predictability of success of achieving the properties attainable by the present invention as discussed above needed to sustain a rejection under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc.*, *supra*; *Diversitech Corp. v. Century Steps, Inc.* 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 187 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966).

Moreover, the properties of the subject matter and improvements which are inherent in the claimed subject matter and disclosed in the specification are to be considered when evaluating the question of obviousness under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc.*, *supra*; *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d. 1923 (Fed. Cir. 1990), *In re Antonie*, 195, USPQ 6 (CCPA 1977), *In re Estes*, 164 USPQ 519 (CCPA 1970), and *In re Papesch*, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the cited art. Along these lines, see *In re Papesch*, *supra*, *In re Burt et al*, 148 USPQ 548 (CCPA 1966), *In re Ward*, 141 USPQ 227 (CCPA 1964), and *In re Cescon*, 177 USPQ 264 (CCPA 1973).

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes that another interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

Application No.: 10/743,387

Docket No.: 27617-00003-US

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 27617-00003-US from which the undersigned is authorized to draw.

Dated: September 3, 2010

Respectfully submitted,

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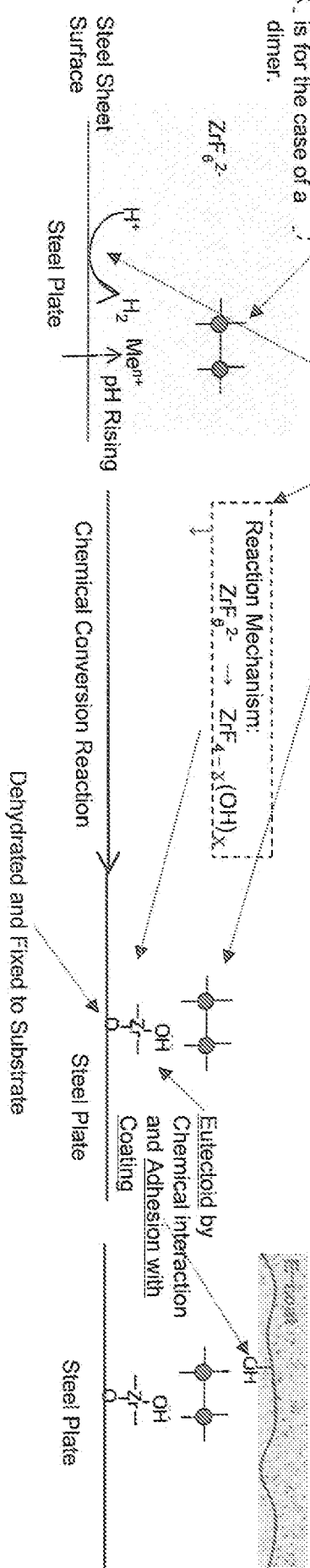
[1] Mechanism in the Present Invention (10/743,387) (Reaction Type)

Treatment process of the present invention	Degreasing → Shower Washing → Chemical Conversion Treatment → Shower Washing → Pure Water Shower → Cationic Electrodeposition Coating
	Components: hydrolysis-polymerized aminosilane/fluorine

The coating film formed by the treatment process of the present invention is a "chemical conversion coating film" which does not wash away when washed (refer to below model diagram). It can be implemented by the reaction mechanism below, and is capable of carrying out uniform coating film formation on objects with complex shapes such as an automobile body.

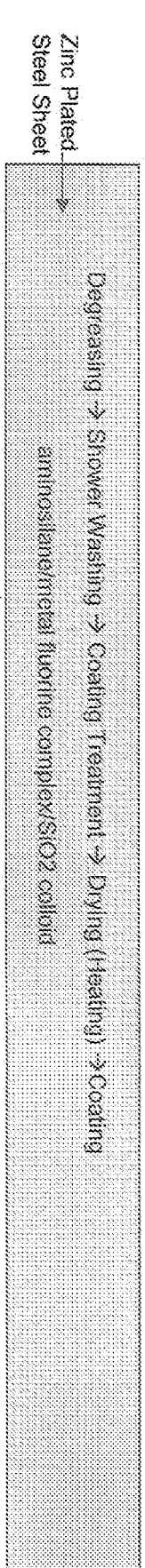
- i) pH is made acidic and an active etching reaction is made to occur at the steel sheet.
- ii) a metal compound coating film (chemical conversion coating film) is formed by the generated alkali
- iii) it is bonded by hydrolyzed-condensation polymerized, made eutectic.

The APS is present from a dimer to a multimer. The figure is for the case of a dimer.



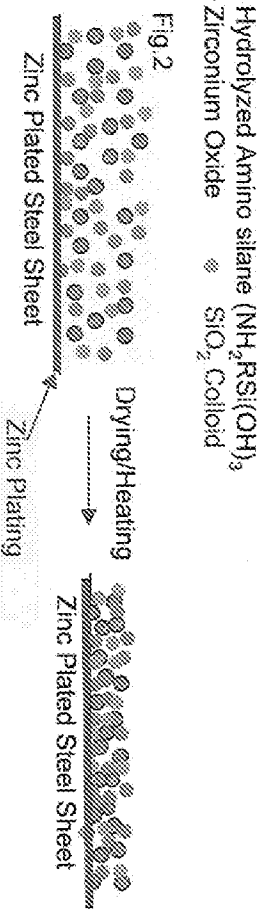
[2] Concerning to the Citation (Shimakura) (Coating Type)

Coating Film Forming Process of the Citation (Coating Type)



Difference 1: The coating film of the coating type is formed by film formation of non-volatile components by heating/drying. It is unnecessary to make eutectic by changing the pH by a metal solution reaction as in the present invention, and it is unnecessary to stipulate a pH in the acidic region (there is no disclosure concerning the pH). On the other hand, in the reaction type mechanism of the present invention, the pH is an essential constituent element.

Difference 2: The coating type processing agent is for zinc plated steel sheets. On the other hand, the present invention can work with steel sheets that have not been metal plated.



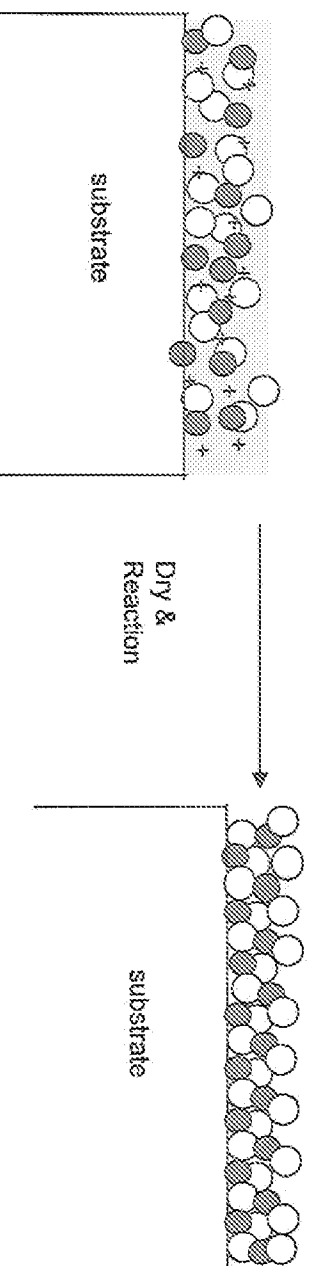
[3] Concerning to the Cation (Nagashima) (Coating Type)

Coating Film Forming Process of the Cation (Coating Type)

Degreasing → Shower Washing → Coating Treatment → Drying (Heating) → Coating

○ Water soluble resin

● + Cation (Added or dissolved from substrate)



As coated (before drying)

The cation works as "linking agent" during curing process followed by coating step. Namely the cations directly react with water-soluble polymer.

Component		Role		Role
Water, and hydrophilic medium		Medium	X	
A	At least two elements selected from a group of Mn, Co, Zn, Mg, Ni, Fe, Ti, Al, Zr	[0019-20] Film Forming Agent [0042-43] Curing acceleration by reaction with resin	X	Reaction controller. And de
B	Fluoro-complex of Ti, Zr, Si, Hf, Al having more than 4 F atoms, and PO ₄ , CH ₃ COOH	[0021] Film Forming Agent [0042-43] Etching Agent	X	deposition on directly on CRS surface(H ₂ ZrF ₆ , H ₂ TiF ₆ , H ₂ HfF ₆)
C	Silane coupling agent selected from a group of amino-, epoxy, vinyl, methacryloxy	[0022-29] Film Forming Agent	X	
D	Water soluble polymer describing (D)	[0022-30] Film Forming Agent Major component	O	
Application Method	Dip, spray, immersion etc		X	
Coating mechanism	Coating and dry	[0016] Coating and dry	O	Conversion coating